

Remarks/Arguments

Reconsideration of the application is requested.

Claims 52-56, 58-71, and 78-107 are now in the application. Claims 52-56, 58-71, and 105-107 are subject to examination and claims 78-104 have been withdrawn from examination. Claims 52, 59, 105, and 106 have been amended. Claim 57 has been canceled.

In item 2 on page 2 of the above-identified Office Action, claims 59 and 61 have been rejected as being indefinite under 35 U.S.C. § 112, second paragraph.

More specifically, with respect to claim 59 the Examiner states that it is not clear how a value/number of the bulging of the surface area is numerically compared with the linear dimension (in this instance, length) of the contact element since the units of area and length are not the same.

Claim 59 has been revised to recite that the bulging area in the substrate surface has a bulge protruding from the surface of the substrate and a length from the surface and the contact

element has a length that is at least 5% greater than the length over which the bulge of the largest bulging area protrudes from the substrate surface. Support for this change may be found on page 8, lines 1-11 of the instant specification.

The claim now recites the length (from the substrate surface) of the bulge of the largest bulging area and the length of the contact element in the same relative dimensional terms. This addresses and it is submitted obviates the Examiner's objection to claim 59.

In respect of claim 61, the Examiner states that "it is not clear from the description in the specification what conditions and parameters are referred to define 'maximum thermal cycling' (recited in the claim) so that a dimensional comparison can be made with respect to the length dimension."

Applicants respectfully submit that claim 61 and the specification of the instant application adequately recite and describe this feature of the present invention and that no further revision of claim 61 is necessary.

The claimed feature relating to "maximum thermal cycling" is described on page 8, line 13 to page 9, line 3 of the instant specification. Maximum thermal cycling is well known and understood in the art as the amplitude of lengthening/shortening under maximum rated thermal operating conditions. It is respectfully submitted that one skilled in the art would understand the claimed feature relating to "maximum thermal cycling" when considered in the context of the instant specification and what is known in the industry and prior art. Therefore, no change has been made to claim 61 regarding the limitation.

It is accordingly believed that the claims meet the requirements of 35 U.S.C. § 112, second paragraph. The above noted changes to the claims are provided solely for the purpose of satisfying the requirements of 35 U.S.C. § 112. The changes are neither provided for overcoming the prior art nor do they narrow the scope of the claims for any reason.

In item 4 on page 3 of the above-identified final Office Action, claims 52-71 and 105-107 have been rejected as being unpatentable over Khandros et al. (U.S. Patent No. 5,917,707) (hereinafter "Khandros") under 35 U.S.C. § 103(a).

The rejection has been noted and independent claims 52 and 105 have been amended in an effort to even more clearly define the invention of the instant application. Support for the changes is found in the original claims and on page 8, lines 1-11 of the instant specification and in Figs. 1 and 2 of the drawings of the instant application.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful. Claim 52 calls for, *inter alia*, an electronic device, comprising:

a substrate having a surface; and

an electronic circuit having interconnects formed on said surface of said substrate;

said electronic circuit including at least one microscopically small contact area;

**said contact area including a microscopically small contact element disposed thereon having a base and a substantially straight part integrally formed at an oblique angle with said**

**base and extending from said contact area in three dimensions in a direction deviating from a direction orthogonal to said surface of said substrate and parallel to said electronic circuit on said substrate, said part extending from said contact area being preformed and angularly disposed obliquely relative to said surface of said substrate in an unstressed condition.** (emphasis added)

While Khandros shows resilient extensions for making electrical connections between a semiconductor chip and another circuit board, the spring element shown is not a contact element having a base and an extended part integral therewith.

A contact element integrally formed with the base according to the present invention allows for using particularly thin extended portions in the shape of a pin, which enables such elements to be economically and securely mounted in position on an electronic circuit. Such advantages are not attainable in the prior art.

Khandros (see Fig. 1) shows extensions in the form of pins with a smaller diameter than their base, however, the

elongated metal pin 106 is not integrally formed with the base 103 and has to be mounted on the base with means for forming an intimate bond (see column 4, lines 59 et seq.). Khandros does not disclose a straight contact element angularly disposed obliquely relative to the substrate surface as recited in claims 52 and 105. The construction of the contact element according to the present invention (for example, see the bottom paragraph on page 31 of the instant specification) enables contact making by rubbing the free end of the contact element at the opposite contact connection. Khandros does not disclose this feature. In Khandros the element 122 is bent to form a cantilevered configuration (see Fig. 2). The elements shown in Khandros have resiliency, but no ability for lateral movement of the free end. Consequently, the prior art elements do not have a rubbing action which is attained by the present claimed invention. Moreover, Khandros does not suggest the possibility of trying to achieve such action.

Clearly, Khandros does not show **"said contact area including a microscopically small contact element disposed thereon having a base and a substantially straight part integrally formed at an oblique angle with said base and extending from said contact area in the dimensions in a direction deviating from a direction orthogonal to said surface of said substrate and**

**parallel to said electronic circuit on said substrate, said part extending from said contact area being pr formed and angularly disposed obliquely relative to said surface of said substrate in an unstressed condition"** as recited in claim 52 of the instant application. Independent claim 105 contains similar limitations.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 52 and 105. Claims 52 and 105 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claims 52 or 105.

In view of the foregoing, reconsideration and allowance of claims 52-56, 58-71, and 78-107 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out. In the alternative, the entry of the amendment is requested, as it is believed to place the application in

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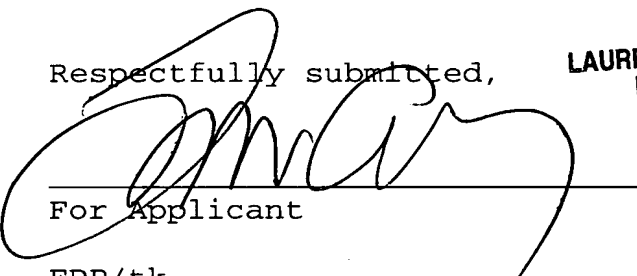
better condition for appeal, without requiring extension of the field of search.

If an extension of time for this paper is required, petition for extension is herewith made.

Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

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For Applicant

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